THE
CENTER
FOR
REPRODUCTION
OF
ENDANGERED
SPECIES

CRES Report

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SPECIES
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How do you tell a black rhino from a white rhino?

Answer: Not by the color! Black rhinos are browsers as distinguished by a hooked upper lip. White rhinos are grazers, as shown by their wide lawnmower mouths.

What they have in common is the risk of extinction. Loss of habitat is one contributing reason, but the real threat is the hordes of human poachers who covet the rhinos' horns.

Adding to the problem is that rhinos can't boast of a great reproductive rate, and it takes time to rebound from the threshold of extinction.

Where there were 15,000 black rhinos a decade ago, now there are less than 3,000. The southern white rhinos are increasing in number, so they are somewhat more secure. The Wild Animal Park in Escondido has a population which has produced 64 offspring since the Park opened in 1972.

The northern white rhino, however, is seriously threatened, with the entire population limited to a mere 33 individuals worldwide.

Enter CRES. Our examinations of the rhinos' genetic blueprints (DNA) revealed just how distinct these animals are from each other. Through a complex series of assessments, we found that both northern and southern white rhinos are different genetically from black rhinos. We also believe, from preliminary evidence, that the two groups of white rhinos are more than slightly different from each other in their genetic make-up.

Defining these differences is vital for conservationists as they make the difficult decision of how much money and effort can or should be put into saving one or both groups of white rhinos. At the international level, the northern white rhino has been given the highest priority for conservation, and a CRES researcher will travel to Czechoslovakia soon to collect blood samples from the world's only group of reproducing northern white rhinos.

Our analysis of these blood samples will be an important step forward in the conservation of these majestic beasts. ■

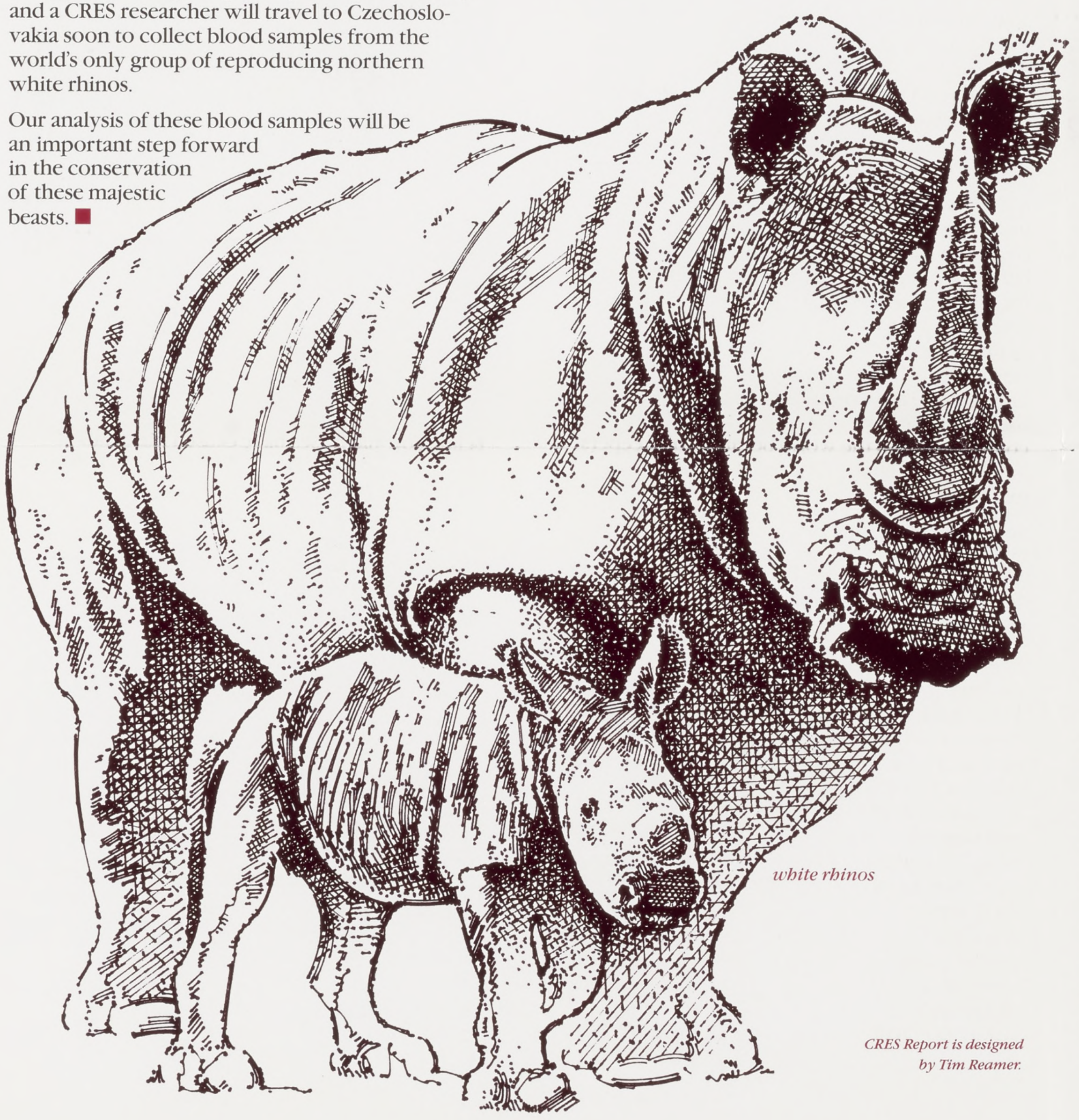
cheetah

In what must be the first such program of its type, CRES reseachers have devised a safe method to collect semen samples from cheetahs—without stress to the animals.

A small collection device has been constructed, and the cheetahs have been trained to deposit semen in return for food rewards. Unlike other methods of collecting semen, this manner doesn't require sedation with all its related risks.

Cooperating in the study are two young male cheetahs named Pesach and Kitani. Their sperm is quite valuable for artificially inseminating female cheetahs which have no unrelated or compatible males for natural mating. Current CRES research focuses on providing the right combination of factors to safely freeze cheetah sperm so it can be thawed without harm to the genetic messages it carries.

Bouncing cheetah cubs may soon be living proof that these CRES techniques for collecting and storing sperm are just the boost that mother nature needs. ■

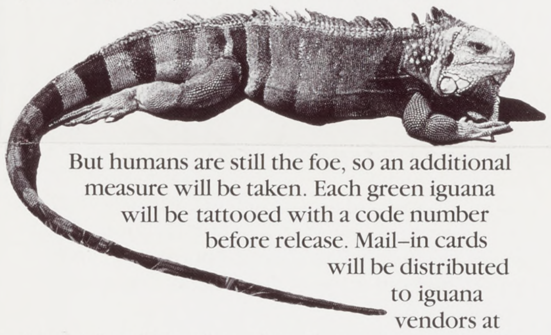

white rhinos

CRES Report is designed by Tim Reamer.

Green iguanas of Central and South America are prized for food, and the eggs are relished for their alleged aphrodesiac qualities. Unfortunately, that means these animals are the target of predatory attention by humans who have nearly decimated the green iguana population to the brink of extinction. Habitat destruction and the export of these iguanas as pets have contributed to their decline as well.

But for all this sorry news, hope is embodied in a new program being set up at this very moment in Central America. CRES researchers and representatives of the four-year-old zoo in Belize (formerly British Honduras) are working closely together to establish a special zoo facility to protect breeding iguanas and their hatchlings.

Zoo officials will intervene in the public markets to purchase iguanas, especially females carrying eggs. The animals then will be placed in the one-acre enclosure, where each can safely lay 30 to 50 eggs per year. When the hatchlings reach a year of age, they'll be released into the wild.



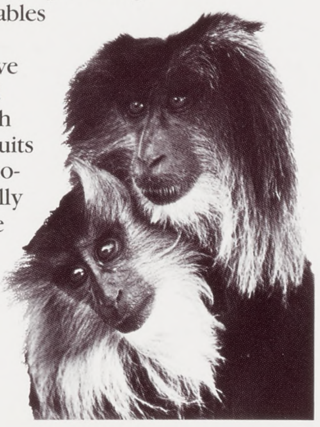
But humans are still the foe, so an additional measure will be taken. Each green iguana will be tattooed with a code number before release. Mail–in cards will be distributed to iguana vendors at the marketplace who, when they receive animals to sell, will record the iguana's weight, length and other vital statistics—along with the tattooed number—and send the card in for a reward. In this way, zoo staff and CRES researchers will be able to track the population in the wild. ■

We've all heard the crickets chirp and the frogs croak, but it isn't often that anyone hears monkeys call to tell prospective mates that they are in the mood for love.

A CRES study of the San Diego Zoo's 32 lion-tailed macaques has yielded important clues to the courtship leading to successful reproductive behaviors. One of the most unusual findings was that the females' "ho-ho" calls are nicely timed to mark truly optimum days for mating. Although our evidence is circumstantial at this point, the cause of calling appears to be influenced by female hormones. This reproduction clue will be highly useful in encouraging the expansion of captive colonies around the world because zoo-keepers will know when to be on the alert for signs of mating.

Social behavior and the dynamics of the lion-tailed macaques' mating system are a major research focus for CRES but we're also interested in other aspects which affect the animals' psychological and physical needs.

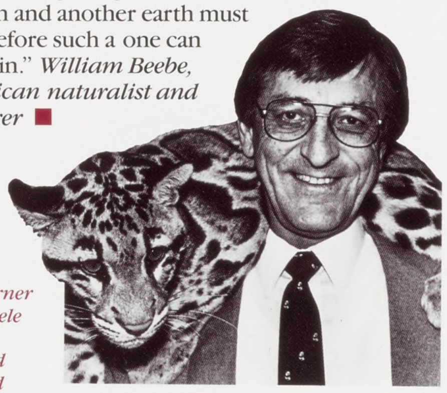
For example, the macaques forage for fruit and vegetables in the wild, but in captivity they thrive on a well-balanced monkey chow with a supplement of fruits and vegetables. Zoo-keepers traditionally peel, slice and dice these treats to give all animals, large or small, a chance to compete equally for food.



In a recent CRES experiment, whole fruits and vegetables were delivered to the animals instead of tiny pieces. What a response! The macaques explored their new food with tremendous interest, spending time to compare, process and peel the whole fruits. Of course, the dominant animals grabbed the preferred foods and ran off to the high perches to devour their prizes, leaving the smaller animals with the less tasty ones. But when the thrill of victory wore off, the choice morsels were dropped to the ground, or the macaques simply lost interest in hoarding. Thus everyone got a square meal.

As our knowledge of the lion-tailed macaques' needs continues to grow, we are increasingly able to provide captive populations with an environment that replicates the wild and encourages a full range of natural behaviors. ■

All of us at CRES are proud to announce that Dr. Werner Heuschele is our new research director. Dr. Heuschele's career actually began at the San Diego Zoo 39 years ago when he worked as a tour bus driver during college. Since then, he's earned an impressive collection of academic credentials and scientific honors and has been associated with CRES since 1981. When asked to describe his accomplishments, Dr. Heuschele demurred . . . and instead requested that his favorite quotation be shared with you: "The beauty and genius of a work of art may be reconceived although its first material expression be destroyed; a vanished harmony may yet inspire the composer; but when the last individual of a race of living things breathes no more, another heaven and another earth must pass before such a one can be again." *William Beebe, American naturalist and explorer* ■


Dr. Werner Heuschele with clouded leopard

The ultimate goals are effective vaccines. The problems are a variety of diseases caused by two groups of viruses which attack species of exotic cats.

Feline coronaviruses have caused the death of exotic cats around the world; although all cats are vulnerable, cheetahs appear to be especially so. It is thought that the increased susceptibility of cheetahs to feline coronavirus infection may be linked to their high degree of genetic similarity. We are now trying to pinpoint the exact region on the virus surface which will provide protective immunity to susceptible cats.

CRES research has shown that a certain group of chronic liver diseases, especially prevalent in snow leopards, may be caused by a virus related to hepatitis B of humans. One aspect of this research involves the painstaking collection of virus from the blood of snow leopards. The next step is to attempt to clone the genetic map, called DNA, of the virus.

The process is an exacting one, but we believe our research will help to remove one of the major threats to the success of captive breeding programs for endangered exotic cats. ■

The Center for Reproduction of Endangered Species (CRES) is operated by the Zoological Society of San Diego, a non-profit organization.